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(54) TWO-LAYER WATER-IN-OIL TYPE EMULSIFIED COMPOSITION

(57) Abstract:

PROBLEM TO BE SOLVED: To obtain the subject composition capable of becoming a homogeneously mixed water-in-oil type emulsified composition through shaking and mixing the subject composition, and whose oil-water interface thereof stably separates into two layers after the lapse of a given time by including a specific silicone, specific oil and water.

SOLUTION: This composition is obtained by including (A) 0.01-0.5 wt.% of a polyether-modified silicone of the formula [A is methyl, phenyl or B; B is a polyoxyalkylene of the formula: C3H6O(C2H4O)a(C3H6O)bR'(R' is H, an acyl, or 1-4C alkyl; (a) and b are each 5-50) ; R is methyl or phenyl; m is 50-1,000; n is 1-40; wherein having at least one polyoxyalkylene in the molecule and also ≦40 wt.% of the polyoxyalkylene therein and the molecular weight of the polyether-modified silicone is ≦30,000], (B) 5.0-80.0 wt.% of a silicone oil, (C) water, and if necessary, (D) a lower alcohol and (E) e.g. a polyhydric alcohol.

glycol do not seem to exceed 40% of the weight of aqueous phase. However, PEG-8 is used at more than 40wt% in the aqueous phase in Examples 3, 8 and 9 etc.

Citation 2(JP-A-2001-58923) discloses a two-layer cosmetic composition which can be emulsified by shaking it and can separates into two layers after a given time.

The formulation of a transparent two-layer water-in-oil emulsion composition disclosed in Example 5 is as follows:

(1)	squalane	3.0 wt%
(2)	decamethylcyclopentasiloxane	50.0
(3)	dimethylpolysiloxane	2.0
(4)	tri-2-ethylhexanoic acid glycerol	0.5
(5)	tetra-2-ethylhexanoic acid pentaerythritol	0.5
(6)	polyether-modified silicone (represented by chemical formula 2)	0.05
(7)	dynamite glycerin (pure glycerin)	10.0
(8)	dipropylene glycol	5.0
(9)	sorbitol	2.0
(10)	ethanol	10.0
(11)	ion-exchanged water	qs 100
(12)	paraben	qs
(13)	antioxidant	qs
(14)	perfume	qs

The aqueous phase may be composed of components 7 to 11. The total amount of polyols (glycerin, dipropylene glycol and sorbitol) is 38.6 wt% of the aqueous phase. The oily phase may mainly be composed of components 1 to 5. The total amount of silicone oils is 92.8 wt% of the oily phase. Also, Citation 2 discloses that this composition is transparent when emulsified. Thus, the refractive indexes of the aqueous phase and the oily phase of this composition are considered to be almost the same.

In addition, the polyether-modified silicone represented by chemical formula 1 is essential in the compositions disclosed in Citation 2.

On the other hand, a composition comprising silicones and polyols is disclosed as comparative example 1 in Citation 2 as follows:

(1)	squalane	3.0 wt%
(2)	decamethylcyclopentasiloxane	50.0
(3)	dimethylpolysiloxane	2.0
(4)	dimethylsiloxane/methylphenylsiloxane copolymer	1.0
(5)	liquid paraffin	0
(6)	2-ethylhexanoic acid cetyl ester	0.5
(7)	polyether-modified silicone *1	0
(8)	polyether-modified silicone *2	0
(9)	dynamite glycerin (pure glycerin)	10.0
(10)	1,3-butylene glycol	5.0
(11)	ethanol	0
(12)	ion-exchanged water	28.4
phase separating ability after mixing		poor
transparency after shaking		poor
usability		good

The total amount of polyols (9-10) contained in the aqueous phase (9-12) is about 34.6 wt%. This may suggest that using polyols in an amount less than 40wt% in an aqueous phase in the absence of polyether-modified silicone cannot provide a composition which is transparent after shaking it.

Our comments

(1)-(2) Novelty and inventive step

The composition disclosed in Citation 1 includes less that 40wt%